

WHAT IS CLAIMED IS:

[c01] 1. A component comprising:

at least one wall having an inner portion and an outer portion;

a plurality of pins extending between said inner and outer portions of said wall, wherein said pins define a mesh cooling arrangement comprising a plurality of flow channels; and

a plurality of dimples located in at least one of said inner and outer portions of said wall.

[c02] 2. The component of Claim 1,

wherein said flow channels comprise a first set of flow channels substantially parallel to one another and a second set of flow channels extending substantially parallel to one another,

wherein said first and second sets of flow channels intersect one another at a plurality of intersection points to form said mesh cooling arrangement, and

wherein at least one of said dimples is positioned at a respective one of the intersection points.

[c03] 3. The component of Claim 3, wherein a majority of said dimples are positioned at respective intersection points.

[c04] 4. The component of Claim 1, wherein at least one of said dimples is positioned between a respective pair of said pins.

[c05] 5. The component of Claim 1, wherein a majority of said dimples are positioned between respective pairs of said pins.

[c06] 6. The component of Claim 1, wherein said dimples are located in both of said inner and outer portions of said wall.

[c07] 7. The component of Claim 1, wherein said dimples are located in said outer portion of said wall.

[c08] 8. The component of Claim 7, further comprising at least one coating on said outer portion of said wall.

[c09] 9. The component of Claim 8, wherein said coating comprises a thermal barrier coating.

[c10] 10. The component of Claim 8, wherein at least one of said dimples extends through said outer portion of said wall to form a cooling hole, and wherein said coating at least partially covers said cooling hole.

[c11] 11. The component of Claim 1, wherein each of said dimples has a center depth of about 0.010 to about 0.030 inches and a surface diameter of about 0.010 to about 0.12 inches.

[c12] 12. The component of Claim 1, wherein each of said dimples is concave.

[c13] 13. The component of Claim 12, wherein each of said dimples is hemispherical.

[c14] 14. The component of Claim 1, wherein each of said dimples is cone shaped.

[c15] 15. The component of Claim 1, wherein at least one of said dimples extends through the respective one of said inner and outer portions of said wall to form a cooling hole.

[c16] 16. The component of Claim 15, wherein each of said dimples extends through the respective one of said inner and outer portions of said wall to form a plurality of cooling holes.

[c17] 17. The component of Claim 1, wherein at least one of said dimples does not extend through the respective one of said inner and outer portions of said wall.

[c18] 18. The component of Claim 17, wherein none of said dimples extend through said inner and outer portions of said wall.

[c19] 19. A hot gas path component comprising:

at least one wall having an inner portion and an outer portion;

a plurality of pins extending between said inner and outer portions of said wall, wherein said pins define a mesh cooling arrangement comprising a plurality of flow channels, wherein said flow channels comprise a first set of flow channels substantially parallel to one another and a second set of flow channels extending substantially parallel to one another, and wherein said first and second sets of flow channels intersect one another at a plurality of intersection points to form said mesh cooling arrangement; and

a plurality of dimples located in at least one of said inner and outer portions of said wall, wherein at least one of said dimples is positioned at a respective one of the intersection points.

[c20] 20. The hot gas path component of Claim 19, wherein a majority of said dimples are positioned at respective intersection points.

[c21] 21. The hot gas path component of Claim 19, wherein at least one of said dimples is positioned between a respective pair of said pins.

[c22] 22. The hot gas path component of Claim 19, wherein at least one of said dimples extends through the respective one of said inner and outer portions of said wall to form a cooling hole.

[c23] 23. The hot gas path component of Claim 19, further comprising at least one coating on said outer portion of said wall, wherein at least one of said dimples extends through said outer portion of said wall, and wherein said coating at least partially covers said cooling hole.

[c24] 24. The component of Claim 23, wherein said coating comprises a thermal barrier coating.

[c25] 25. A component comprising:

at least one wall having an inner portion and an outer portion;

a plurality of pins extending between said inner and outer portions of said wall, wherein said pins define a mesh cooling arrangement comprising a plurality of flow channels;

a plurality of dimples located in at least one of said inner and outer portions of said wall; and

a plurality of turbulators disposed on at least one of said inner and outer portions of said wall.

[c26] 26. The component of Claim 25, wherein said turbulators extend between respective pairs of said pins in a direction transverse to a cooling flow.

[c27] 27. The component of Claim 25, wherein said turbulators extend between respective pairs of said pins and are oriented at an angle relative to a cooling flow.

[c28] 28. The component of Claim 25, wherein a first subset of said turbulators extend between respective pairs of said pins and are oriented at a first angle relative to a cooling flow, wherein a second subset of said turbulators extend between respective pairs of said pins and are oriented at a second angle relative to the cooling flow, and wherein the first and second angles intersect.

[c29] 29. The component of Claim 25, wherein respective pairs of turbulators form chevron turbulators on the respective one of said inner and outer portions of said wall.

[c30] 30. The component of Claim 29, wherein said pins are arranged in a plurality of columns, wherein each of a plurality of subsets of said dimples are disposed between respective ones of said columns of said pins, and wherein each of a plurality of subsets of said chevron turbulators are also disposed between respective ones of said columns of said pins.

[c31] 31. The component of Claim 30, wherein said dimples and said chevron turbulators are alternately disposed on the respective one of said inner and outer portions of said wall.

[c32] 32. The component of Claim 30, wherein at least two of said dimples are positioned between a respective pair of said chevron turbulators.

[c33] 33. The component of Claim 30, wherein each of said chevron turbulators within at least one of said subsets of said chevron turbulators has an apex oriented downstream relative to a cooling flow.

[c34] 34. The component of Claim 30, wherein each of said chevron turbulators within at least one of said subsets of said chevron turbulators has an apex oriented upstream relative to a cooling flow.

[c35] 35. The component of Claim 29, wherein at least one of said chevron turbulators is segmented.

[c36] 36. The component of Claim 29, wherein said dimples and said chevron turbulators are formed on only one of said inner and outer portions of said wall.

[c37] 37. The component of Claim 29, wherein said dimples and said chevron turbulators are formed on both of said inner and outer portions of said wall.

[c38] 38. A component comprising:

at least one wall having an inner portion and an outer portion;

a plurality of dimples located in at least one of said inner and outer portions of said wall; and

a plurality of turbulators disposed on at least one of said inner and outer portions of said wall.

[c39] 39. The component of Claim 38, wherein respective pairs of turbulators form chevron turbulators on the respective one of said inner and outer portions of said wall.

[c40] 40. The component of Claim 39, wherein said dimples and said chevron turbulators are formed on both of said inner and outer portions of said wall.